

## THE GENUS *DIPOGON* (HYMENOPTERA: POMPILIDAE) IN THE ROCKY MOUNTAINS<sup>1</sup>

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**ABSTRACT:** The only species of *Dipogon* previously reported from the Rocky Mountains is *D. (Deuteragenia) sayi nigrilor* Townes. Two additional species, *D. (Deuteragenia) sericeus* Banks and *D. (Dipogon) lignicolus* new species, are herein recorded from north central Colorado.

Although the pompilid genus *Dipogon* is well represented in the eastern United States, the Southwest, and the Pacific states, only one species has been recorded from the Rocky Mountains. *D. (Deuteragenia) sayi nigrilor* Townes has been reported from Montana, Colorado, New Mexico (Townes, 1957) and Wyoming (Evans, 1970). Two additional species are herein reported from north central Colorado, at elevations of 1900-2350 m.

### MATERIALS AND METHODS

Species of *Dipogon* are only occasionally collected by routine methods. They are small, rarely visit flowers, largely confined to wooded areas, and nest in hollow twigs or in beetle burrows in dead trees. Of the species treated herein, one (*sericeus*) was collected in a Malaise trap, while the other (*lignicolus* n.sp.) was reared from a wooden trap nest. The male of *sericeus* was previously unknown, and a description is provided below; both sexes of *lignicolus* are described and a photograph of the nest provided. In the descriptions the terminology follows Evans (1950).

#### *Dipogon (Deuteragenia) sericeus* Banks

This species was described from Lake Co., Oregon, at 2290 m elevation (Banks, 1944), and has since been recorded from California (Krombein, 1979). I collected four females and one male in Hewlett Gulch, Larimer Co., Colorado (ca. 1900 m elevation) during August and September 1978. They were taken in a Malaise trap set up among tall Asteraceae heavily infested with aphids in open forest along Gordon Creek. Females were compared with the type of *sericeus* in the California Academy of Sciences and found to be conspecific. The previously unknown male will key to couplet 5 in Townes (1957, p. 117) but differs from *sayi* Banks and *calipterus* Say in lacking any clouding along the basal vein of the fore wing and by minor differences in the genitalia. It is also

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smaller (forewing 4 mm, as compared to 4.5-6.3 mm in *sayi* and *calipterus*).

**Description of male.** - Length 4.5 mm; forewing 4 mm. Black, including antennae and legs to tarsi, which are dusky yellow-brown; wings hyaline, forewing clouded in the marginal and third submarginal cells. Body clothed with fine pubescence which is mostly silvery but grades into golden brown on the mesoscutum. Sparse, short, white hairs also present over much of body, these especially prominent on vertex, temples, pronotum, and first tergite. Antenna weakly crenulate, segment three 2.5 times as long as thick. Head broad, transfacial distance 1.1 times facial distance; front broad, middle interocular distance .65 times transfacial distance; front dull, finely granulate. Vertex evenly arched above eye tops; postocellar line 1.2 times ocello-ocular line. Thoracic dorsum dull, with minute, close punctures; posterior margin of pronotum arcuate; propodeum with a median, linear impression. Second and third submarginal cells approximately equal in width, third submarginal receiving second recurrent vein one fourth distance from base. Hooks on sixth sternite moderately stout; subgenital plate with a strong median keel, not notched apically; genitalia as figured (Fig. 1).

### ***Dipogon (Dipogon) lignicolus* Evans, new species**

A small series of this species was reared from a trap nest taped to the wooden deck of my home in open ponderosa pine-Douglas fir forest in Larimer Co., Colorado, at 2350 m elevation. The trap nest had a 5 mm bore and, when harvested on 1 September 1985, contained four cells, 12-15 mm long, each containing a white, silken cocoon measuring 3 by 8 mm (Fig. 3). The outer 7 cm of the bore was empty and there was no outer closure. Cells were closed off by thin partitions of a material resembling sticky silk, possibly collected from spider webs. On the inner side of each partition was an accumulation of detritus consisting of small pebbles, 0.2-1.5 mm in diameter, and bits of Douglas fir needles and bark and wood chips. In the detritus there was also one seed, one small dead beetle, and fragments of an ant. Next to the cocoons there were fragments of the spiders that served as prey, but these could not be identified. Three females and a male emerged from the cocoons in April 1986.

**Description of holotype female.**-Length 5.5 mm; forewing 4.5 mm. Black; legs black except apical half of tarsi light reddish brown; antennae black basally and at extreme apex, segments 4-10 (ventrally 3-11) light reddish brown. Wings hyaline, faintly clouded along basal vein and over a broad area below stigma; microtrichia slightly larger and more crowded in the clouded areas than elsewhere. Body clothed with fine, silvery pubescence that grades into golden brown on mesoscutum; silvery pubescence especially conspicuous on scutellum, coxae, and abdomen. Head, thoracic dorsum, propleura, and coxae with sparse, erect hairs; first tergite with short hairs on basal half; sternites with stiff bristles and apical tergite densely bristly.

Mandibles tridentate, bearing strong bristles; clypeus truncate, 2.5 times as wide as high. Front shining, weakly alutaceous and with minute punctures separated by slightly more than their own diameters. Transfacial distance slightly exceeding facial distance; middle

interocular distance .61 times transfacial distance; upper interocular distance .80 times lower interocular distance. Vertex weakly arched above eye tops, postocellar and ocello-ocular lines subequal. Third antennal segment 4.5 times as long as its maximum width. Pronotum broadly angulate behind; mesoscutum minutely punctate, like the front, but punctures slightly more crowded; posterior half of mesopleuron polished and largely impunctate; propodeum shining and with relatively sparse punctures, its midline not impressed. Maximum width of third submarginal cell .80 times that of second submarginal, receiving second recurrent vein .3 distance from base.

**Description of allotype male.**- Length 5 mm; forewing 3.8 mm. Black, including antennae and legs except tarsi brownish, anterior surface of forefemora and tibiae brownish, and basal antennal segments suffused with brown ventrally. Wings hyaline, without clouding, microtrichia more crowded along basal vein and in area below stigma. Body sparsely clothed with silvery pubescence except pubescence much denser on venter of thorax and coxae; head, prothorax, and basal half of first tergite with a few pale, erect hairs. Antennae crenulate, segment three slightly more than twice as long as thick. Transfacial distance 1.03 times facial distance; middle interocular distance .60 times transfacial distance; upper and lower interocular distances subequal. Vertex strongly elevated above eye tops; postocellar line 1.2 times ocello-ocular line; front angle of ocellar triangle exceeding a right angle. Front as well as thoracic dorsum weakly shining, alutaceous and densely micropunctate. Pronotum arcuate behind; mesopleuron moderately shining, densely punctate; propodeum strongly shining and more sparsely punctate, faintly impressed medially. Venation as in female. Hooks of sixth sternite robust, subtriangular; subgenital plate with a high median keel, acute apically; genitalia as figured (Fig. 2).

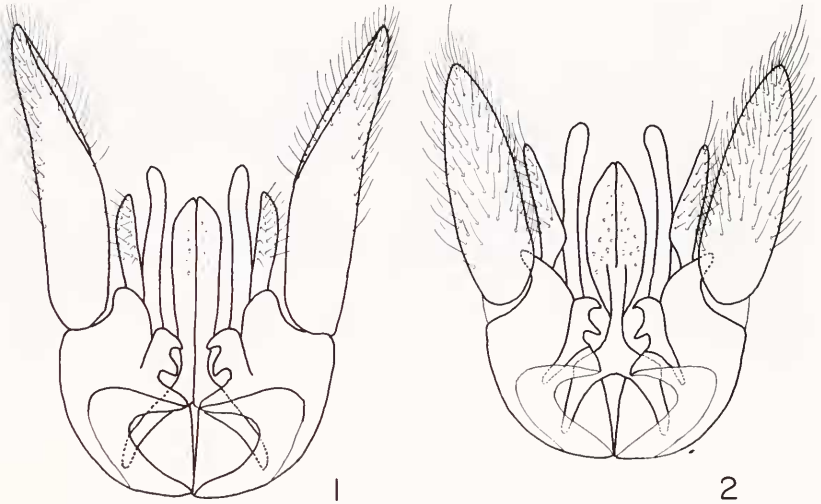
**Variation.**- One of the paratype females is smaller than the type (forewing 4 mm) but there are no other differences worthy of note.

**Holotype.**- Female, COLORADO: Larimer Co., Glacier View Meadows [23 km west of Livermore], 2350 m, 25 April 1986 (H.E. Evans, note no. 4031). **Allotype.**- Male, same data [both Museum of Comparative Zoology, Cambridge, MA]. **Paratypes.**- Two females, same data [U.S. National Museum, Colorado State University].

## DISCUSSION

*D. lignicolus* belongs to the *graenicheri* group of the subgenus *Dipogon*, as defined by Townes (1957). It differs from *graenicheri* not only in the mostly black coloration but in having the integument less shining, more closely punctate and conspicuously pubescent; the wings are also less strongly banded and the second submarginal cell shorter compared to the third. *D. lignicolus* differs from *diablo* Wasbauer (1960), a California species also belonging to this species-group, in coloration and in its slightly larger size; the female differs further in having the postocellar and ocello-ocular lines subequal and in having erect hairs on the first tergite, while the male differs in having a narrower front and the postocellar line only 1.2 times the ocello-ocular line. The male genitalia differ from those of *diablo*, as figured by Wasbauer (1960), in having more heavily setose digits and parameres, broader digits, and other details.

Nests in borings in wood, with cells separated by complex barriers containing bits of soil, wood, and other debris, are the rule rather than the



Figures 1 and 2. Male genitalia of *Dipogon* species, ventral aspect. Fig. 1, *D. (Deuteragenia) sericeus* Banks. Fig. 2, *D. (Dipogon) lignicolus* n.sp.

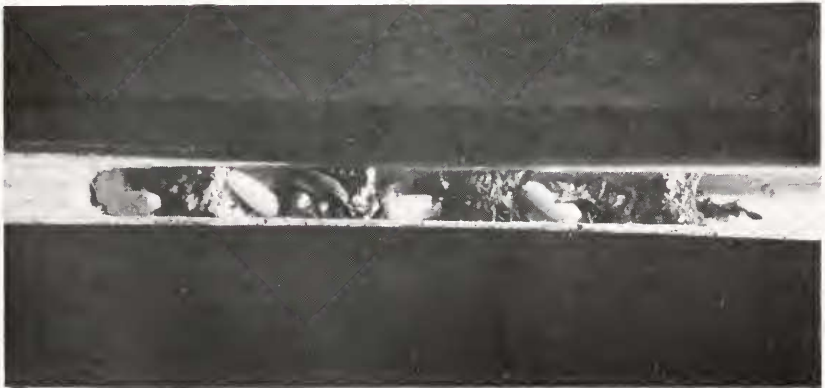


Figure 3. Trap nest showing four cells containing cocoons of *Dipogon (Dipogon) lignicolus* n.sp. Note the mass of detritus on the inner side of each partition.

exception in members of both subgenera of *Dipogon* (Medler and Koerber, 1957; Krombein, 1967). The use of spider webs in cell partitions is well known in some species (Richards and Hamm, 1939). Thus there is nothing particularly distinctive about the nesting behavior of *lignicolus*.

During both 1985 and 1986 I put out between 200 and 300 trap nests near my home 23 km west of Livermore, Colorado, and in 1985 a similar number in Rocky Mountain National Park, at a similar elevation about 50 km further south. I have also used Malaise traps at these and several other localities in Larimer County. Yet the few specimens of *sericeus* and *lignicolus* discussed here represent the only *Dipogon* I have taken. It appears that all species in this genus are extremely rare in the Rocky Mountains.

#### ACKNOWLEDGMENTS

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